

ENERGY STAR[®] Supermarket Energy Performance Scale Development

Development Timeline

July 2008 – Model Revision

Intranet Location:

G:\CPPD\C&I Branch\C&I Tools Team\ENERGY STAR Scale - Reference\Supermarket

Primary Data Source:

Commercial Buildings Energy Consumption Survey (CBECS) 1999 & 2003

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1. Final Supermarket Model Replication (March 27, 2008 – Alexandra Sullivan)

This document provides all information necessary to replicate the model for the Supermarket energy performance scale. This includes descriptive statistics summarizing CBECS survey data, the filters applied, the final model and the lookup table. The goodness-of-fit of this model is also discussed by providing statistics such as the R^2 value and various graphs of residuals. EPA and ICF used this document to replicate the model independently.

2. Supermarket Final Data & Lookup Table (March 27, 2008 – Alexandra Sullivan)

This excel file was used to create the final lookup table. The spreadsheet contains all of the CBECS data for the 83 supermarkets used to create the energy performance scale. All requisite variables for scoring each building are available such as refrigeration unit density, heating degree days, worker density and hours of operation. Also shown are the results of a weighted regression, including the coefficients for each variable. The predicted EUI and energy efficiency ratios for each building are then determined and used to create a table listing the score and percentile corresponding to each building.

3. Supermarket Model Revision Technical Direction (March 27, 2008 – Alexandra Sullivan)

This is the official technical instruction provided to SRA to revise the Supermarket model for release in July 2008. The document includes complete information on attributes, the prediction equation, the lookup table, eligibility criteria and required score change reports.

4. Updates to the EPA Rating for Supermarket (March 4, 2008 – Alexandra Sullivan)

This presentation communicates to industry stakeholders the planned revisions to the ENERGY STAR energy performance scale for Supermarkets. After briefly explaining what an energy performance scale is, the need for updates is explained (more informative/recent survey data, analysis of different operating characteristics, examination of alternative statistical methods for modeling, etc). The most significant changes are explained, such as the use of data from both 2003 and 1999 CBECS surveys instead of the 1995 and 1992 surveys previously used. Possible changes to building scores resulting from the updates and analysis of these changes are also discussed.

5. Supermarket Model Revision Summary (March 18, 2008 – Alexandra Sullivan)

This internal memo was prepared for the C&I Branch management and sector lead to summarize important characteristics of the new Supermarket model. The memo compared the new, revised model with the old model and explained how stakeholder feedback and PM data were incorporated into the newly revised model.

6. Analysis of Expected Ratings Changes (July 2008 – Alexandra Sullivan)

This internal memo was prepared for the C&I Branch to analyze the expected score changes resulting from any updates to energy performance scales in the July 2008 release, including revisions to the Supermarket model.

7. Technical Description for Supermarket (July 2008 – EPA & ICF)

This is the publicly available document describing the Technical Methodology for the Supermarket energy performance scale. It explains how the model used to rate supermarkets was developed and how it can be systematically applied to all eligible supermarkets. This document walks readers through each aspect of development and provides the reference data, the characteristics/variables analyzed, the filters applied, the statistical regression results (i.e. the coefficients and predictive formula) and an example calculation.